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United States  
Department of  
Agriculture

Conservation  
Service



# Washington

## Basin Outlook Report

March 1, 1994





# Basin Outlook Reports

## and Federal - State - Private Cooperative Snow Surveys

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### *How forecasts are made*

Most of the annual streamflow in the Western United States originates as snowfall that has accumulated high in the mountains during winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Predictions are based on careful measurements of snow water equivalent at selected index points. Precipitation, temperature, soil moisture and antecedent streamflow data are combined with snowpack data to prepare runoff forecasts. Streamflow forecasts are coordinated by Soil Conservation Service and National Weather Service hydrologists. This report presents a comprehensive picture of water supply conditions for areas dependent upon surface runoff. It includes selected streamflow forecasts, summarized snowpack and precipitation data, reservoir storage data, and narratives describing current conditions.

Snowpack data are obtained by using a combination of manual and automated SNOTEL measurement methods. Manual readings of snow depth and water equivalent are taken at locations called snow courses on a monthly or semi-monthly schedule during the winter. In addition, snow water equivalent, precipitation and temperature are monitored on a daily basis and transmitted via meteor burst telemetry to central data collection facilities. Both monthly and daily data are used to project snowmelt runoff.

Forecast uncertainty originates from two sources: (1) uncertainty of future hydrologic and climatic conditions, and (2) error in the forecasting procedure. To express the uncertainty in the most probable forecast, four additional forecasts are provided. The actual streamflow can be expected to exceed the most probable forecast 50% of the time. Similarly, the actual streamflow volume can be expected to exceed the 90% forecast volume 90% of the time. The same is true for the 70%, 30%, and 10% forecasts. Generally, the 90% and 70% forecasts reflect drier than normal hydrologic and climatic conditions; the 30% and 10% forecasts reflect wetter than normal conditions. As the forecast season progresses, a greater portion of the future hydrologic and climatic uncertainty will become known and the additional forecasts will move closer to the most probable forecast.

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# Washington Water Supply Outlook

March 1994

## General Outlook

A large storm moved through the southern part of the Cascade Mountains the last part of February, dumping record amounts of snowfall. Crystal Mountain reported 65 inches in 24 hours. The snowpack varies from a high of 100% of average in the Colville River Basin to 60% in the Baker River. Washington SNOTEL sites averaged 86% of the normal snowpack for March 1, up from 65% on February 1 (By March 7, the statewide average was 80%). Forecasts for 1994 runoff vary from 95% of average for the Grande Ronde River to 64% for the Similkameen River. February precipitation was 105% of normal statewide. It varied from 143% of average in the Olympic Basins to 80% in the Spokane Basin. Year-to-date precipitation varies from 62% in the Spokane Basin to 82% in the Olympic Basin. February temperatures were below normal and varied from four degree below in the Spokane Basin to one degrees below in the Okanogan Basin. February streamflows varied from 115% of normal on the Kettle River to 30% on the Spokane River. March 1 reservoir storage is generally poor throughout the state, with reservoirs in the Yakima Basin at 27% of average and 18% of capacity.

## Snowpack

A large snowfall the third week of February brought the southern basins in the state to near average snowpack for the year. The March 1 SNOTEL reading showed the snowpack to be 86% of average. Snowpack varied over the state, with the Baker River having the lowest with 60% of average, and the Colville River having the highest at 100% of normal. The Olympic Basins had 72% of average, up from 34% last month. Snowpack along the east slopes of the Cascade Mountains included the Yakima with 87% up from 65% last month, and the Wenatchee with 88% up from 67% last month. Snowpack in the Okanogan was at 90%, and the Spokane Basin had 74%. Maximum snow cover was at Paradise SNOTEL near Mount Rainier, with a water content of 46.4 inches. This site would normally have 47.9 inches of water content on March 1.

## Precipitation

February precipitation reported from National Weather Service stations was 105% of average statewide. The year-to-date precipitation statewide is 66% and it varies from 62% of normal in the Spokane Basin, to 82% in the Olympic Basin. February precipitation varied from 143% of average in the Olympic Basin, to 80% in the Spokane Basin. SNOTEL sites in Washington showed high elevation year-to-date precipitation values to be 76% of average. Maximum year-to-date precipitation was at the June Lake SNOTEL site near Mt. St. Helens, with 84.8 inches since October 1, 1993; normal for this site is 97.0 inches.

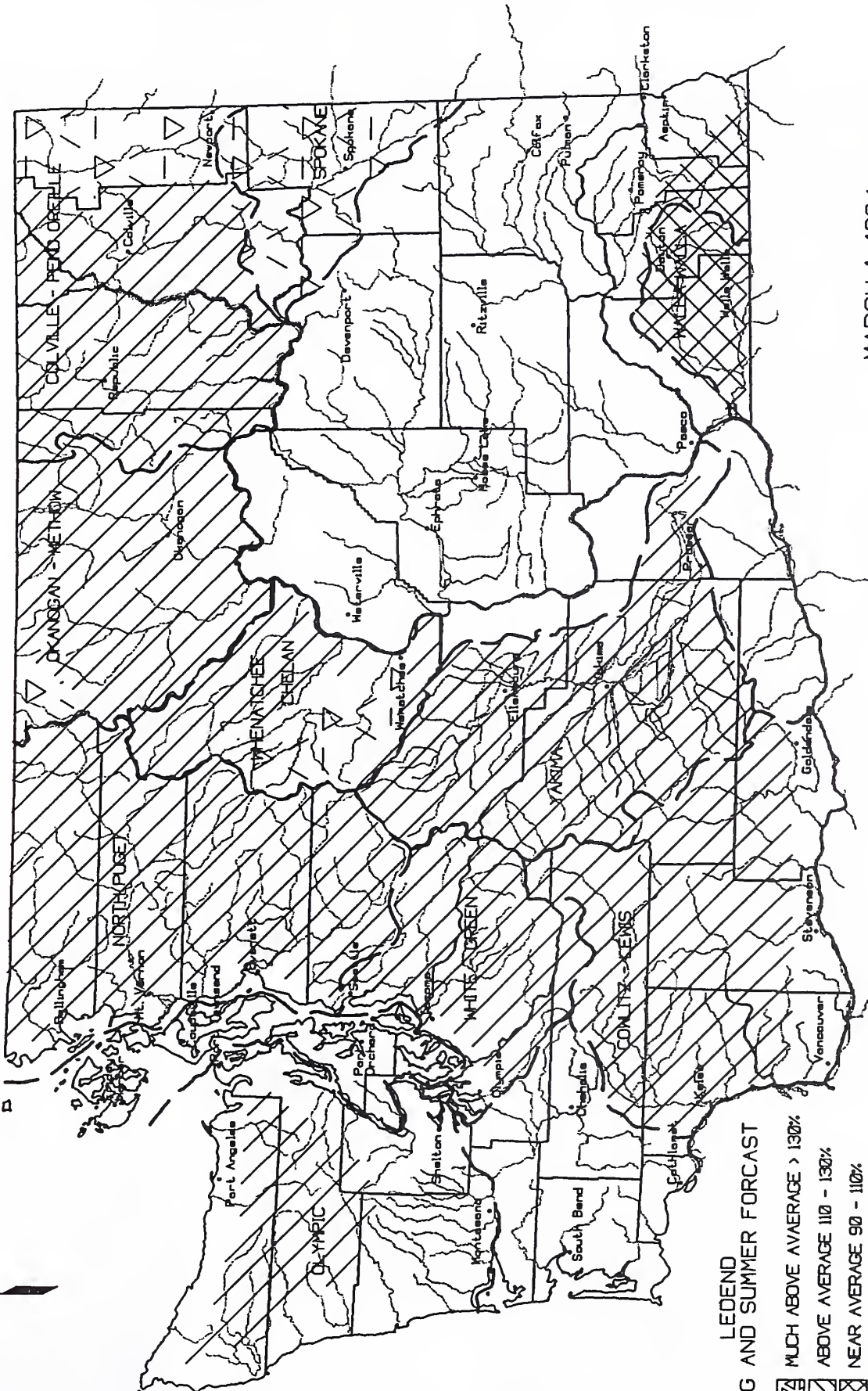
## Reservoir

Streamflows continued below normal in February keeping the Yakima Basin reservoir storage below average. Reservoir storage in the Yakima Basin was 187,800 acre feet, 27% of normal. Storage at other reservoirs included Roosevelt at 112% of average, and the Okanogan reservoirs, continue good, at 131% of normal for March 1. The power generation reservoirs include the following: Coeur d'Alene Lake, 35,500 acre feet, or 24% of normal; Chelan Lake, 172,600 acre feet, 103% of average and 26% of capacity, and Ross Lake at 252% of average and 55% of capacity.

## Streamflow

Forecasts for summer streamflow are for below to much below average. They vary from 95% of average for the Grannde Ronde River in the Walla Walla Basin to 64% of normal for the Similkameen River near Nighthawk. March forecasts for some west side streams include: Cedar River, 87%; Green River, 89%; and the Dungeness River, 78%. Some east side streams include the Walla Walla River, 91%; the Wenatchee River, 67%; and the Colville River, 82%. The Okanogan River is forecast to have 74% of normal runoff and the Yakima near Parker 73%. February streamflows varied greatly but most streams were below average in Washington. The Kettle River at 115% was the highest and the Spokane River with 30%, was the lowest in the state. Other streamflows were the following percentage of normal: the Cowlitz River, 45%; the Okanogan River, 68%; the Wenatchee River, 44%; the Columbia at the Canadian border, 88%, and the Yakima River at Kiona, 40%.





**LEGEND**  
**SPRING AND SUMMER FORECAST**

	MUCH ABOVE AVERAGE > 130%
	ABOVE AVERAGE 110 - 130%
	NEAR AVERAGE 90 - 110%
	BELOW AVERAGE 70 - 90%
	MUCH BELOW AVERAGE < 70%
	NOT FORECAST
	WATERSHED BOUNDARY

MARCH 1, 1994

STREAMFLOW PROSPECTS  
WASHINGTON

NTS



WATERSHED BOUNDARY

MOUNTAIN SNOWPACK  
WASHINGTON

STN

U.S. DEPARTMENT OF AGRICULTURE  
SOIL CONSERVATION SERVICE





LOST - DATA CURRENT AS OF: 3/ 7/94 9: 7:12

# BASIN SUMMARY OF SNOW COURSE DATA

MARCH 1994

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-90	SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-90
PEND OREILLE RIVER							HARTS PASS PILLOW	6500	3/01/94	---	26.4S	23.5	34.6
BENTON MEADOW	2370	2/24/94	15	4.9	8.1	5.9	MUTTON CREEK #1	5700	2/28/94	47	12.8	11.0	11.4
BENTON SPRING	4920	2/24/94	46	13.0	14.2	16.7	RUSTY CREEK	4000	2/28/94	23	5.8	6.1	6.2
BOYER MOUNTAIN	5250	2/23/94	53	16.4	17.2	21.6	SALMON MDWS PILLOW	4500	3/01/94	---	9.6S	8.0	8.3
BUNCHGRASS MEADOWS	5000	2/22/94	70	21.5	16.8	26.6	CHELAN LAKE BASIN						
BUNCHGRASS MDWPILLOW	5000	3/01/94	---	19.6	16.9	22.7	LYMAN LAKE PILLOW	5900	3/01/94	---	39.9S	29.5	48.4
CHEWALAH	4930	2/24/94	47	13.5	13.4	13.5	MINERS RIDGE PILLOW	6200	3/01/94	---	35.4S	28.3	46.9
HOODOO BASIN	6050	3/01/94	---	26.3E	28.8	42.7	PARK CK RIDGE PILLOW	4600	3/01/94	---	23.2S	26.1	40.6
HOODOO CREEK	5900	3/01/94	---	21.6E	25.0	39.2	RAINY PASS	4780	3/01/94	75	24.6	19.2	33.4
NELSON CAN.	3100	2/28/94	52	15.7	12.3	14.3	RAINY PASS PILLOW	4780	3/01/94	---	29.0E	20.8	32.7
KETTLE RIVER							ENTIAT RIVER						
BARNES CREEK CAN.	5300	2/26/94	68	19.8	17.3	17.2	BRIEF	1600	2/24/94	28	8.0	6.9	6.9
BIG WHITE MTN CAN.	5510	2/28/94	60	16.2	14.6	16.3	POPE RIDGE PILLOW	3540	3/01/94	---	14.9S	11.4	16.7
BUTTE CREEK	4070	3/01/94	---	15.3E	--	8.2	WENATCHEE RIVER						
CARMI CAN.	4100	2/28/94	25	6.5	6.8	6.1	BERNE-MILL CREEK (d)	3170	2/28/94	75	22.7	19.0	24.7
FARRON CAN.	4000	2/25/94	46	10.9	10.3	12.4	BLEWETT PASS#2PILLOW	4270	3/01/94	---	13.2E	11.2	17.0
GOAT CREEK	3600	2/24/94	26	5.9	6.6	6.4	CHIWAUKUM G.S.	2500	2/28/94	37	9.6	7.5	10.7
MONASHEE PASS CAN.	4500	2/26/94	43	11.9	12.4	12.2	FISH LAKE PILLOW	3370	3/01/94	---	29.7S	18.6	28.4
SUMMIT G.S.	4600	2/24/94	31	6.8	8.8	7.1	LYMAN LAKE PILLOW	5900	3/01/94	---	39.9S	29.5	48.4
TRAPPING CK LOW CAN.	3050	2/27/94	23	4.8	5.3	5.1	MERRITT	2140	2/28/94	37	9.9	10.4	14.4
TRAPPING CK UP CAN.	4460	2/27/94	33	7.6	9.1	9.1	MISSION RIDGE	5000	2/25/94	53	13.8	14.1	14.0
COLVILLE RIVER							STEVENS PASS PILLOW	4070	3/01/94	---	32.0E	26.6	34.7
CHEWALAH	4930	2/24/94	47	13.5	13.4	13.5	STEVENS PASS SAND SD	3700	2/28/94	82	24.8	20.3	31.1
TOGO	3370	2/28/94	33	9.4	11.2	9.3	TROUGH #2 PILLOW	5310	3/01/94	---	8.7S	9.0	9.0
OMAK LAKE, TWIN LAKES							UPPER WHEELER	4400	2/24/94	24	7.1	10.9	9.4
MOSES MOUNTAIN (1)	4800	2/24/94	55	14.1	17.8	14.4	UPPER WHEELER PILLOW	4400	3/01/94	---	10.0S	11.3	12.1
MOSES MTN PILLOW	4800	3/01/94	---	9.0S	--	11.7	SQUILCHUCK CREEK						
MOSES MEADOWS (3)	3800	2/24/94	12	2.8	--	2.4	STEMILT CREEK						
MOSES PEAK (2)	6650	2/24/94	44	10.7	11.6	10.3	STEMILT SLIDE	5000	2/24/94	44	11.0	12.1	12.7
MOUNT TOLMAN	2000	2/22/94	7	2.6	7.1	3.5	UPPER WHEELER	4400	2/24/94	24	7.1	10.9	9.4
TWIN LAKES	2700	2/23/94	19	7.2	7.3	8.7	UPPER WHEELER PILLOW	4400	3/01/94	---	10.0S	11.3	12.1
SPOKANE RIVER							COLOCKUM CREEK						
FOURTH OF JULY SUM	3200	2/25/94	21	5.2	11.6	8.4	TROUGH #2 PILLOW	5310	3/01/94	---	8.7S	9.0	9.0
LOST LAKE (d)	6110	3/01/94	---	29.1E	34.8	47.2	YAKIMA RIVER						
MOSQUITO RDG PILLOW	5200	3/01/94	---	22.6	22.9	32.2	ANTANUM R.S.	3100	3/01/94	18	4.8	11.2	6.8
SUNSET	5540	3/01/94	---	16.6E	18.6	30.8	BLEWETT PASS#2PILLOW	4270	3/01/94	---	13.2S	11.2	17.0
SUNSET PILLOW	5540	3/01/94	---	19.4	21.0	32.0	BUMPING LAKE	3450	2/28/94	49	13.1	10.1	14.0
NEWMAN LAKE							BUMPING LAKE (NEW)	3400	3/01/94	---	15.3E	12.4	17.6
QUARTZ PEAK PILLOW	4700	3/01/94	---	18.2	17.4	18.6	BUMPING RIDGE PILLOW	4600	3/01/94	---	20.3S	17.2	18.4
RAGGED RIDGE	3330	2/23/94	25	7.2	12.0	7.4	CAYUSE PASS	5300	3/01/94	---	53.5E	53.8	65.3
OKANOGAN RIVER							CORRAL PASS PILLOW	6000	3/01/94	---	21.9S	21.3	27.6
ABERDEEN LAKE CAN.	4300	2/25/94	28	5.8	6.0	5.9	FISH LAKE	3370	2/24/94	95	27.2	20.7	29.3
BRENDA MINE CAN.	4800	2/24/94	32	7.5	10.3	11.9	FISH LAKE PILLOW	3370	3/01/94	---	29.7S	18.6	28.4
BROOKMERE CAN.	3200	2/27/94	20	4.3	4.7	8.0	GREEN LAKE	6000	3/01/94	---	28.4E	23.7	29.1
ENDERBY CAN.	6200	2/28/94	117	37.0	25.6	32.6	GREEN LAKE PILLOW	6000	3/01/94	---	17.1S	16.8	17.5
ESPERON CK. UP CAN.	5410	2/27/94	51	13.2	14.4	15.7	GROUSE CAMP PILLOW	5380	3/01/94	---	16.1S	12.5	17.1
FREEZEOUT CK. TRAIL	3500	3/02/94	21	6.6	7.2	11.1	DOMMERIE FLATS	2200	2/23/94	18	4.1	5.6	7.7
GREYBACK RES CAN.	5120	3/01/94	35	8.7	8.3	7.8	LOST HORSE PILLOW	5000	3/01/94	---	14.7S	17.7	25.6
HAMILTON HILL CAN.	4890	2/27/94	35	9.2	10.7	13.7	MORSE LAKE PILLOW	5400	3/01/94	---	33.3S	31.7	38.5
HARTS PASS	6500	3/01/94	85	26.3	23.4	36.2	OLALLIE MDWS PILLOW	3960	3/01/94	---	37.6S	31.4	44.6
HARTS PASS PILLOW	6500	3/01/94	---	26.4S	23.5	34.6	OLALLIE MEADOWS	3630	3/02/94	65	25.0	16.9	38.7
ISINTOK LAKE CAN.	5500	2/24/94	22	4.5	7.4	6.8	SASSE RIDGE PILLOW	4200	3/01/94	---	26.6S	24.0	27.4
LIGHTNING LAKE CAN.	4000	2/28/94	18	5.3	6.8	11.9	STAMPEDE PASS PILLOW	3860	3/01/94	---	34.4S	29.2	38.2
LOST HORSE MTN CAN.	6300	3/01/94	20	4.3	6.7	8.1	TUNNEL AVENUE	2450	2/25/94	53	13.8	13.9	19.2
MCCULLOCH CAN.	4200	2/28/94	28	7.0	8.2	6.4	WHITE PASS ES PILLOW	4500	3/01/94	---	18.5S	17.5	20.7
MISSEZULA MTN CAN.	5090	2/27/94	27	6.2	6.8	9.0	ANTANUM CREEK						
MISSION CREEK CAN.	5800	3/01/94	60	17.7	14.7	17.2	ANTANUM R.S.	3100	3/01/94	18	4.8	11.2	6.8
MONASHEE PASS CAN.	4500	2/26/94	43	11.9	12.4	12.2	GREEN LAKE	6000	3/01/94	---	28.4E	23.7	29.1
MT. KOBAY CAN.	5900	2/26/94	35	8.7	10.9	10.7	GREEN LAKE PILLOW	6000	3/01/94	---	17.1S	16.8	17.5
MUTTON CREEK #1	5700	2/28/94	47	12.8	11.0	11.4	LOST HORSE PILLOW	5000	3/01/94	---	14.7S	17.7	25.6
OYAMA LAKE CAN.	4400	2/24/94	28	6.6	7.4	6.1	MILL CREEK						
POSTILL LAKE CAN.	4500	2/28/94	35	8.7	7.2	7.4	HIGH RIDGE PILLOW	4980	3/01/94	---	21.9S	25.0	21.6
RUSTY CREEK	4000	2/28/94	23	5.8	6.1	6.2	TOUCHET #2 PILLOW	5530	3/01/94	---	22.5	27.6	27.8
SALMON MDWS PILLOW	4500	3/01/94	---	9.6S	8.0	8.3	LEWIS - COWLITZ RIVERS						
SILVER STAR MTN CAN.	6000	2/26/94	83	25.4	24.8	24.3	CAYUSE PASS	5300	3/01/94	---	53.5E	53.8	65.3
SUMMERLAND RES CAN.	4200	2/23/94	27	5.9	8.4	8.7	JUNE LAKE PILLOW	3200	3/01/94	---	26.0S	43.1	33.6
SUNDAY SUMMIT CAN.	4300	2/24/94	17	3.4	4.8	5.5	LONE PINE PILLOW	3800	3/01/94	---	27.8S	25.5	28.1
TROUT CREEK CAN.	4690	2/27/94	21	4.8	6.9	6.7	PARADISE PARK PILLOW	5500	3/01/94	---	46.4S	45.2	47.9
VASEUX CREEK CAN.	4600	3/01/94	22	5.7	5.7	5.9	PIGTAIL PEAK PILLOW	5900	3/01/94	---	31.9S	28.1	41.0
WHITE ROCKS MTN CAN.	6000	2/28/94	56	17.4	15.4	20.0	POTATO HILL PILLOW	4500	3/01/94	---	20.5S	21.0	21.9
METHOW RIVER							SHEEP CANYON PILLOW	4050	3/01/94	---	25.8S	35.8	30.1
HARTS PASS	6500	3/01/94	85	26.3	23.4	36.2	SPENCER MDW PILLOW	3400	3/01/94	---	28.8S	28.0	27.2
							SPIRIT LAKE PILLOW	3100	3/01/94	---	7.8S	11.2	6.6

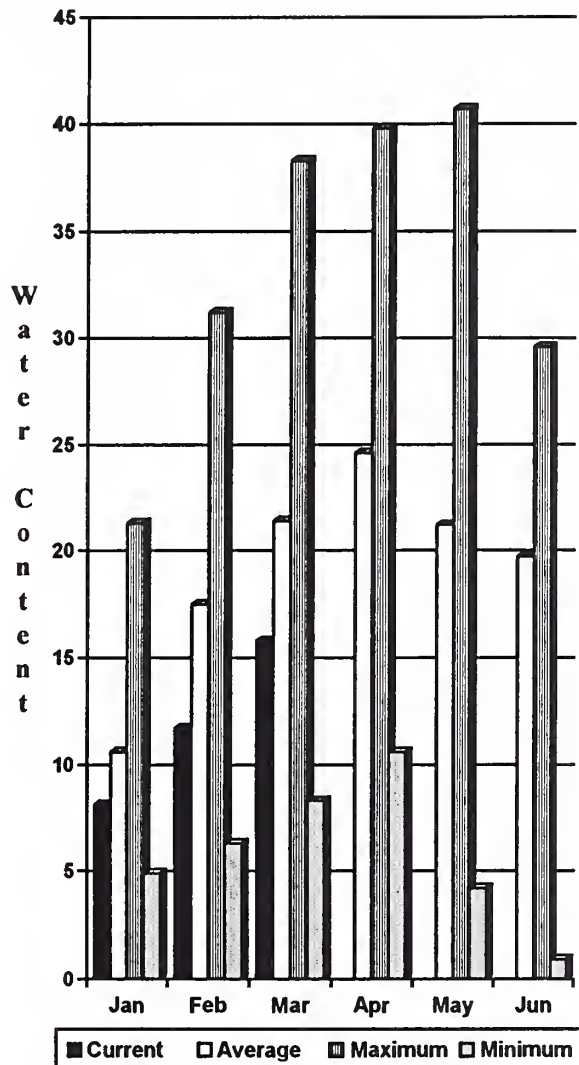
SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-90
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SURPRISE LKS PILLOW	4250	3/01/94	---	36.76	35.8	37.5
WHITE PASS ES PILLOW	4500	3/01/94	---	18.56	17.5	20.7
WHITE RIVER						
CAYUSE PASS	5300	3/01/94	---	53.5E	53.8	65.3
CORRAL PASS	6000	3/01/94	---	27.1E	26.2	33.9
CORRAL PASS PILLOW	6000	3/01/94	---	21.9S	21.3	27.6
MORSE LAKE PILLOW	5400	3/01/94	---	33.36	31.7	38.5
GREEN RIVER						
COUGAR MTN. PILLOW	3200	3/01/94	---	10.26	15.8	18.6
GRASS MOUNTAIN #2	2900	3/01/94	---	11.0E	7.2	13.9
LYNN LAKE	4000	3/01/94	---	12.6E	18.7	16.0
SAWMILL RIDGE	4700	3/01/94	---	23.5E	21.8	29.7
STAMPEDE PASS PILLOW	3860	3/01/94	---	34.46	29.2	38.2
CEDAR RIVER						
CITY CABIN	2390	3/01/94	---	9.8E	10.9	12.3
MT. GARDNER	3300	3/01/94	---	12.9E	13.3	14.2
MT. GARDNER PILLOW	2860	3/01/94	---	12.9S	--	14.2
TINKHAM CREEK PILLOW	3000	3/01/94	---	23.1S	--	17.2
MEADOWS PASS PILLOW	3240	3/01/94	---	11.3E	--	18.1
SNOQUALMIE RIVER						
ALPINE MEADOWS	3500	3/01/94	---	27.3E	36.9	33.8
KROMONA MINE	2400	3/02/94	29	13.4	--	29.1
OLALLIE MDWS PILLOW	3960	3/01/94	---	37.6S	31.4	44.6
OLALLIE MEADOWS	3630	3/02/94	65	25.0	16.9	38.7
OLNEY PASS	3250	3/02/94	21	9.7	--	21.5
SKYKOMISH RIVER						
STAMPEDE PASS PILLOW	3860	3/01/94	---	34.46	29.2	38.2
STEVENS PASS PILLOW	4070	3/01/94	---	32.0E	26.6	34.7
STEVENS PASS SAND SD	3700	2/28/94	82	24.8	20.3	31.1
SKAGIT RIVER						
BEAVER CREEK TRAIL	2200	3/03/94	23	8.4E	12.5	12.6
BEAVER PASS	3680	3/03/94	56	20.6E	15.8	25.1
BROWN TOP AM	6000	3/01/94	123	41.8	31.0	51.9
DEVILS PARK	5900	3/01/94	85	28.0	21.2	36.9
FREEZEOUT CK. TRAIL	3500	3/02/94	21	6.6	7.2	11.1
HARTS PASS	6500	3/01/94	85	26.3	23.4	36.2
HARTS PASS PILLOW	6500	3/01/94	---	26.4S	23.5	34.6
KLESILKWA CAN.	3710	2/24/94	25	5.6	6.9	11.4
LIGHTNING LAKE CAN.	4000	2/28/94	18	5.3	6.8	11.9
LYMAN LAKE PILLOW	5900	3/01/94	---	39.9S	29.5	48.4
MEADOWS CABIN	1900	3/01/94	10	2.0	5.0	6.2
NEW MOZOMEEN LAKE	2800	3/02/94	16	4.3	7.2	10.9
RAINY PASS	4780	3/01/94	75	24.6	19.2	33.4
RAINY PASS PILLOW	4780	3/01/94	---	29.0E	20.8	32.7
THUNDER BASIN	4200	3/01/94	56	16.8	12.6	18.5
THUNDER BASIN PILLOW	4200	3/01/94	---	25.8E	16.9	32.3
BAKER RIVER						
EASY PASS AM	5200	3/01/94	---	38.7E	29.0	64.5
ROCKY CREEK AM	2100	3/01/94	---	15.1E	29.0	25.2
ELWHA RIVER						
HURRICANE	4500	2/27/94	43	11.0	8.6	17.4
MORSE CREEK						
COX VALLEY	4500	2/28/94	80	25.9	19.2	32.4
DUNGENESS RIVER						
DEER PARK	5200	2/24/94	44	11.7	10.5	17.3
QUILCENE RIVER						
MOUNT CRAG PILLOW	4050	3/01/94	---	24.96	17.9	23.9

(d) Denotes discontinued site.

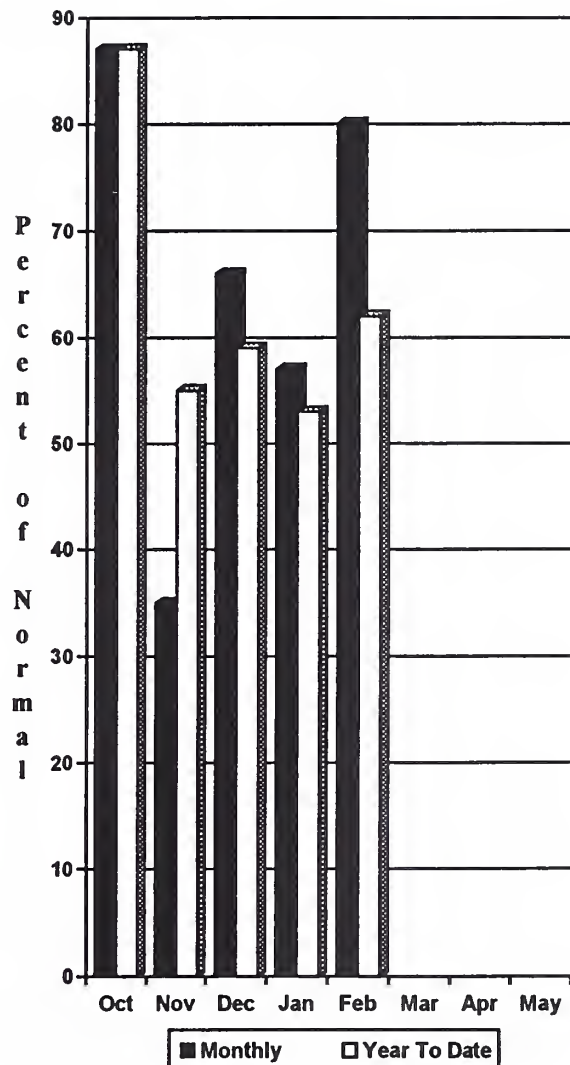


# Spokane River Basin

Mountain Snowpack\* (inches)



Precipitation\* (% of normal)



\*Based on selected stations

The March 1 forecasts for summer runoff within the Spokane River Basin are 66% of normal, up from 63% last month. The forecast is based on a snowpack that is 74% of average and precipitation that is 62% of normal for the water year. Precipitation for February was 80% of average. Streamflow on the Spokane River was 30% of average for February. March 1 storage in Coeur d'Alene Lake was 35,500 acre feet, 24% of normal, and 15% of capacity. Temperatures in the basin were four degrees below normal during February.

For more information contact your local Soil Conservation Service office.

# SPOKANE RIVER BASIN

## Streamflow Forecasts - March 1, 1994

Forecast Point	Forecast Period	<<----- Drier ----- Future Conditions ----- Wetter ----->>						
		90%		70%		Chance Of Exceeding *		30-Yr Avg. (1000AF)
		(1000AF)	(1000AF)	(1000AF)	(1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	
SPOKANE near Post Falls (2)	APR-SEP	685	1400	1638	60	1880	2570	2730
	APR-JUL	1040	1380	1620	62	1860	2200	2633
SPOKANE at Long Lake (2)	APR-JUL	820	1490	1940	66	2390	3060	2937

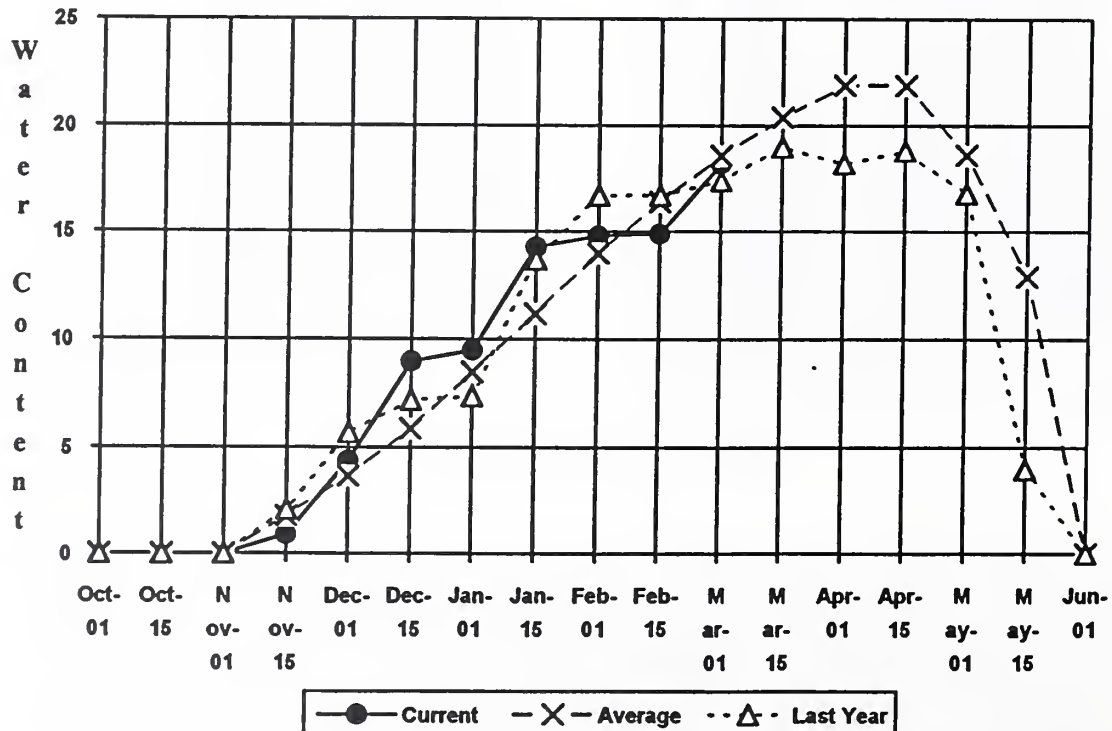
SPOKANE RIVER BASIN Reservoir Storage (1000 AF) - End of February					SPOKANE RIVER BASIN Watershed Snowpack Analysis - March 1, 1994			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
COEUR D'ALENE	238.5	35.5	39.6	149.1	Spokane River	18	80	74

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
 (2) - The value is natural flow - actual flow may be affected by upstream water management.

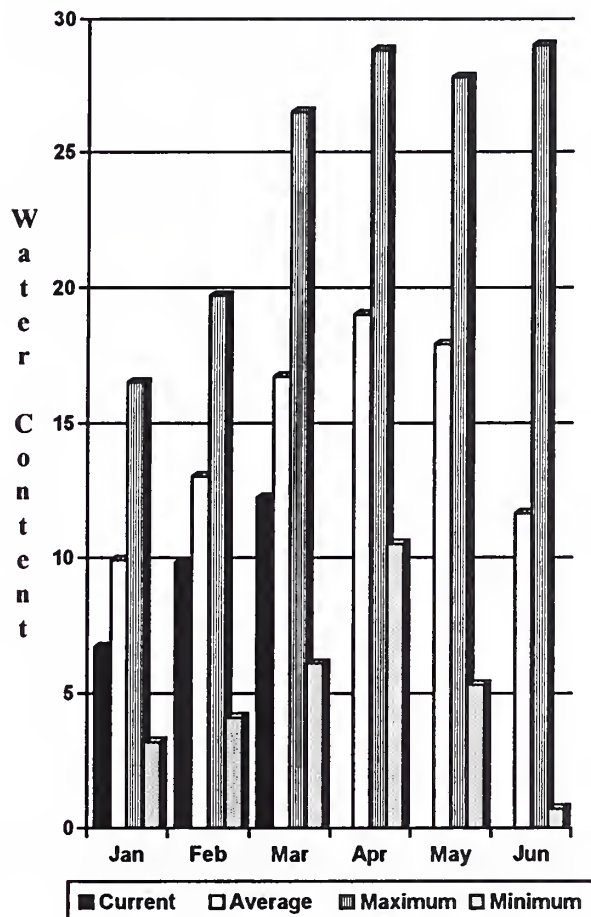
## Quartz Peak SNOTEL



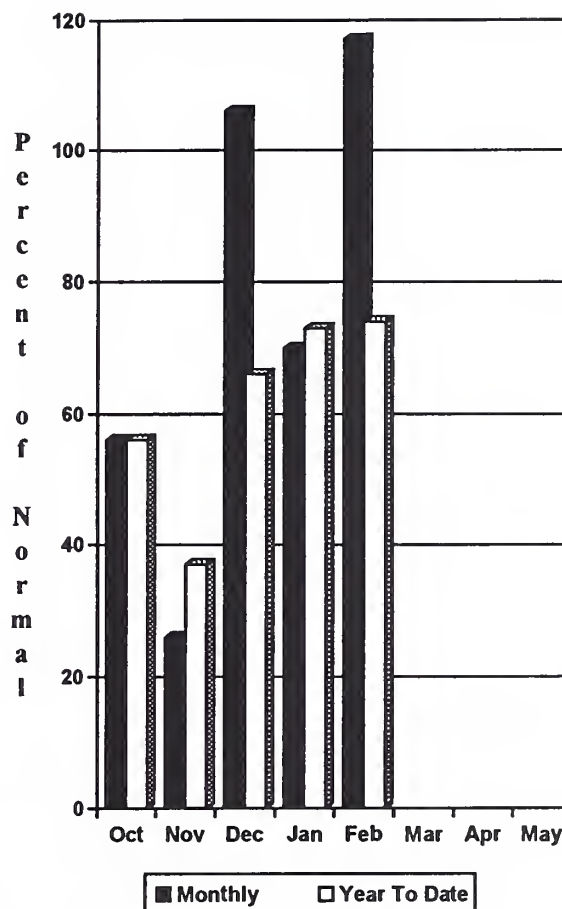


# Colville - Pend Oreille River Basins

Mountain Snowpack\* (inches)



Precipitation\* (% of normal)



\*Based on selected stations

The forecast for the Kettle River streamflow is for 87% of normal, the Pend Oreille, 65%, and the Colville River, 82% of normal for the summer runoff period. Forecast for the Columbia River at Birchbank is for runoff to be 91% of average. February streamflow was 50% of normal on the Pend Oreille River, 88% on the Columbia at the International Boundary, and 115% on the Kettle River. March 1 snow cover was 73% of normal in the Pend Oreille Basin, and 100% in the Colville River. Snowpack at Bunchgrass Meadow SNOTEL site contained 19.6 inches of water, the average March 1 reading is 21.5 inches. Precipitation during February was 117% of average, bringing the water year-to-date to 74% of normal. Temperatures were four degrees below normal for February.

For more information contact your local Soil Conservation Service office.

**COLVILLE - PEND OREILLE RIVER BASINS**  
Streamflow Forecasts - March 1, 1994

Forecast Point	Forecast Period	<<----- Drier ----- Future Conditions ----- Wetter ----->>						
		Chance Of Exceeding *						30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF) (% AVG.)		30% (1000AF)	10% (1000AF)	
PEND OREILLE Lake Inflow (1,2)	APR-JUL	5470	7590	8548	65	9510	11600	13150
	APR-SEP	5750	8290	9341	65	10400	13100	14370
	APR-JUN	4500	6500	7404	65	8310	10300	11390
PRIEST nr Priest River (1,2)	APR-JUL	395	545	611	75	680	830	814
	APR-SEP	420	580	651	75	725	880	868
PEND OREILLE bl Box Canyon (1,2)	APR-JUL	6040	7910	8760	65	9610	11500	13380
	APR-SEP	6590	8620	9550	65	10500	12500	14590
	APR-JUN	5180	6790	7520	65	8250	9860	11570
CHAMOKANE CK nr Long Lake	MAY-AUG	2.1	5.7	8.1	86	10.5	14.1	9.4
COLVILLE at Kettle Falls	APR-SEP	68	92	108	82	124	148	131
	APR-JUL	63	85	100	83	115	137	120
	APR-JUN	58	78	91	82	104	124	111
KETTLE nr Laurier	APR-SEP	1000	1370	1610	87	1850	2220	1853
	APR-JUL	970	1300	1530	87	1760	2100	1760
	APR-JUN	865	1170	1380	87	1590	1890	1585
COLUMBIA at Birchbank (1,2)	APR-JUL	27700	31100	32700	93	34300	37700	35140
	APR-SEP	34500	38800	40800	93	42800	47100	43810
	APR-JUN	20300	22800	23900	93	25000	27500	25670
COLUMBIA at Grand Coulee Dm (1,2)	APR-SEP	43900	51000	54200	84	57400	64500	64850
	APR-JUL	37200	43100	45800	84	48500	54400	54543
	APR-JUN	29200	33800	35900	84	38000	42600	42756

**COLVILLE - PEND OREILLE RIVER BASINS**  
Reservoir Storage (1000 AF) - End of February

**COLVILLE - PEND OREILLE RIVER BASINS**  
Watershed Snowpack Analysis - March 1, 1994

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites		This Year as % of Last Yr Average	
		This Year	Last Year	Avg					
ROOSEVELT		NO REPORT			Colville River	2	93	100	
BANKS	715.0	677.5	681.3	606.0	Pend Oreille River	82	97	73	
					Kettle River	9	99	98	

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

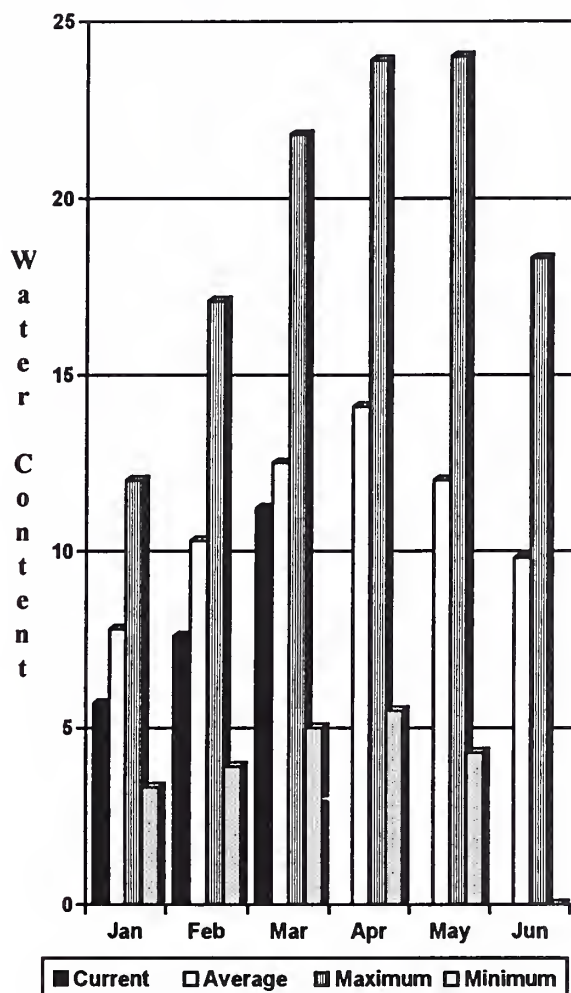
The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
 (2) - The value is natural flow - actual flow may be affected by upstream water management.

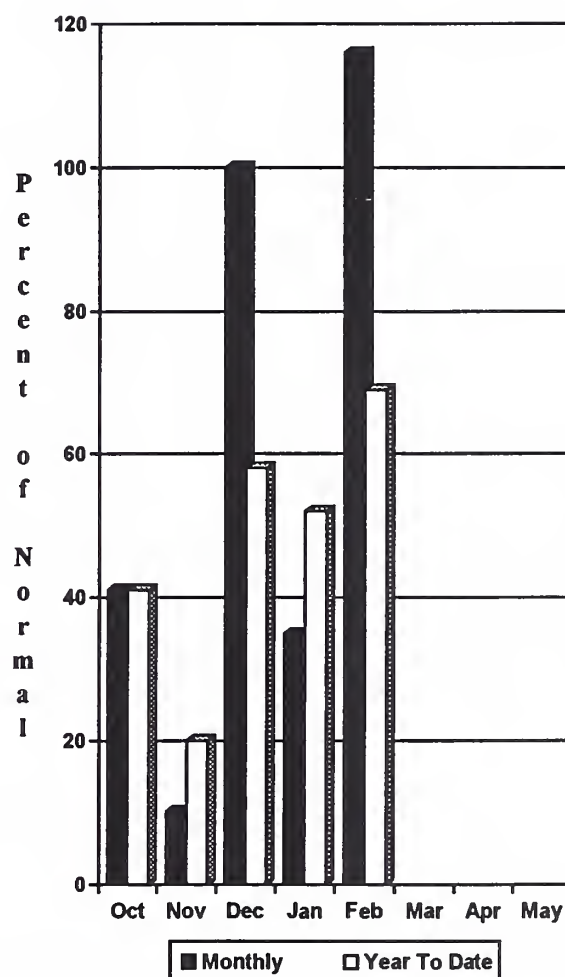


# Okanogan - Methow River Basins

Mountain Snowpack\* (inches)



Precipitation\* (% of normal)



\*Based on selected stations

Summer runoff forecast for the Okanogan River is for 74% of normal; the Similkameen River, 64%, and the Methow River, 80% of normal. March 1 snow cover in the Okanogan was 90% of normal, the Smilkameen 62%, and the Methow 90%. February precipitation in the Okanogan - Methow was 116% of normal, with water year-to-date at 69% of average. February streamflow on the Methow River was 68% of normal, 67% on the Similkameen, and 68% on the Okanogan River. Snow water content at the Harts Pass SNOTEL, elevation 6500 feet, was 26.4 inches; normal for this site is 34.6 inches. Temperatures were one degree below normal for February. Storage in the Conconully Reservoir was 18,300 acre feet, which is 78% of capacity and 131% of the March 1 average.

For more information contact your local Soil Conservation Service office.

# **OKANOGAN - METHOW RIVER BASINS** Streamflow Forecasts - March 1, 1994

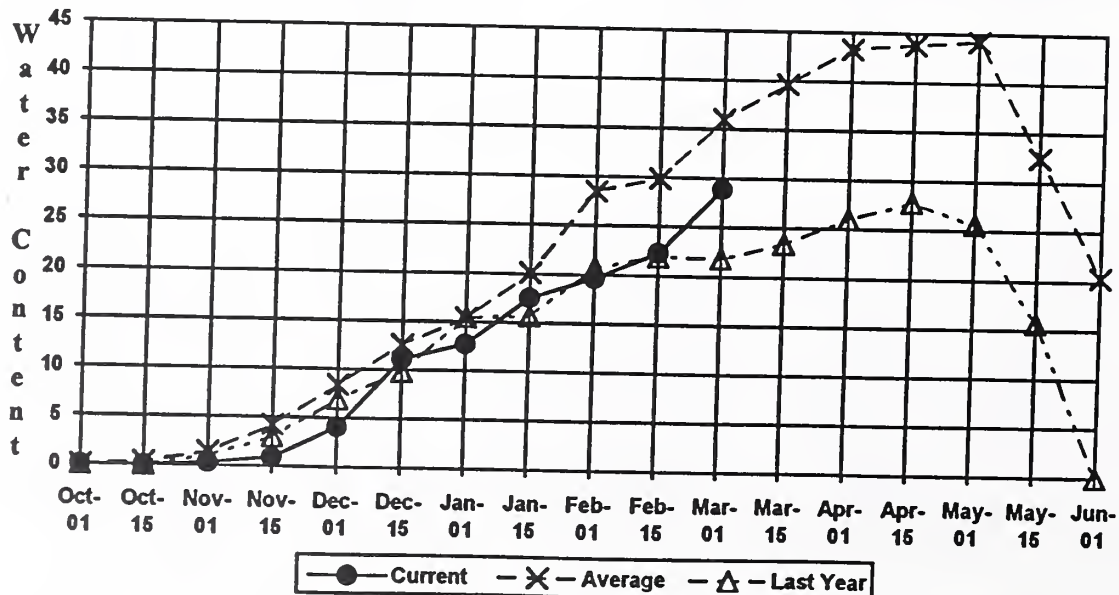
Forecast Point	Forecast Period	<<----- Drier ----- Future Conditions ----- Wetter ----->>						30-Yr Avg. (1000AF)
		-----		Chance Of Exceeding *		-----		
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
SIMILKAMEEN nr Nighthawk (1)	APR-SEP	505	805	900	64	995	1300	1399
	APR-JUL	565	765	855	66	945	1140	1304
	APR-JUN	555	720	795	71	870	1030	1113
OKANOGAN RIVER nr Tonasket (1)	APR-SEP	585	1000	1200	74	1400	1800	1624
	APR-JUL	535	925	1100	75	1280	1670	1467
	APR-JUN	500	795	925	75	1060	1350	1234
METHOW RIVER nr Pateros (1)	APR-SEP	485	665	750	80	835	1020	942
	APR-JUL	480	650	725	83	800	970	873
	APR-JUN	405	555	620	83	685	835	746

OKANOGAN - METHOW RIVER BASINS Reservoir Storage (1000 AF) - End of February					OKANOGAN - METHOW RIVER BASINS Watershed Snowpack Analysis - March 1, 1994			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
CONCONULLY LAKE (SALMON)	10.5	9.0	7.2	8.0	Okanogan River	28	100	87
CONCONULLY RESERVOIR	13.0	9.3	5.7	6.0	Methow River	4	112	90

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.  
The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
(2) - The value is natural flow - actual flow may be affected by upstream water management.

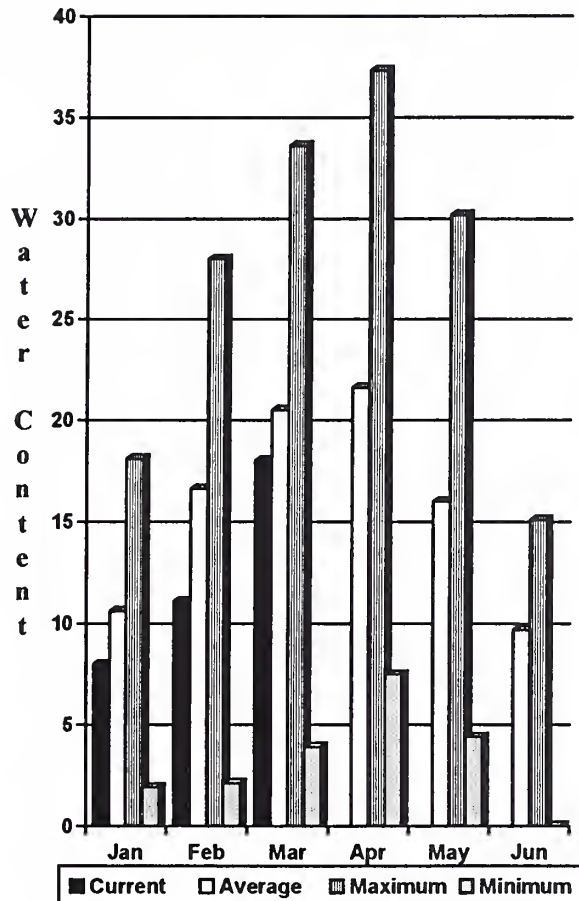
## **Rainy Pass SNOTEL**



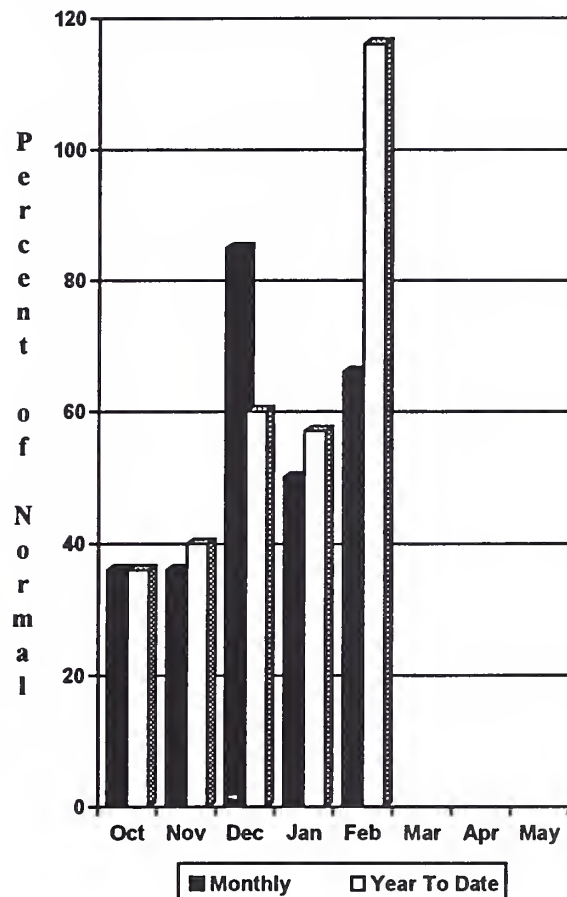


# Wenatchee - Chelan River Basins

Mountain Snowpack\* (inches)



Precipitation\* (% of normal)



\*Based on selected stations

The summer forecast for the Chelan River is for 73% of normal, for the Wenatchee River it is 67%, and 84% for the Squilchuck-Stemilt. Icicle Creek can expect below normal runoff this summer. Streamflow for February on the Chelan River was 74% of average and on the Wenatchee River it was 44% of normal. March 1 snowpack in the Wenatchee Basin was 88% of average. The Chelan Basin was 76% of the March 1 average. Snowpack along Colockum Ridge and Stemilt Creek was at 85% of normal. Snowpack in the Entiat River was at 97% of average. Precipitation during February was 116% of normal in the basin and 66% for the year-to-date. Runoff for the Entiat River is forecast to be 75% of normal for the summer. Reservoir storage in Lake Chelan was 172,600 acre feet or 103% of March 1 average and 26% of capacity. Lyman Lake SNOTEL had the most snow water with 39.9 inches of water. This site would normally have 48.4 inches.

For more information contact your local Soil Conservation Service office.

**WENATCHEE - CHELAN RIVER BASINS**  
Streamflow Forecasts - March 1, 1994

Forecast Point	Forecast Period	<<----- Drier ----- Future Conditions ----- Wetter ----->>						30-Yr Avg. (1000AF)
		----- Chance Of Exceeding * -----						
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
CHELAN RIVER at Chelan (1)	APR-SEP	615	760	850	73	940	1080	1160
	APR-JUL	515	690	770	75	850	1020	1024
	APR-JUN	410	550	610	75	670	810	812
STEHEKIN R. at Stehekin	APR-SEP	510	575	620	75	665	730	827
	APR-JUL	440	495	530	76	565	620	701
	APR-JUN	340	380	410	76	440	480	538
ENTIAT RIVER nr Ardenvoir	APR-SEP	124	151	170	75	189	215	227
	APR-JUL	112	138	156	76	174	200	206
	APR-JUN	94	114	128	76	142	162	169
WENATCHEE R. at Peshastin	APR-SEP	540	875	1090	67	1310	1640	1636
	APR-JUL	515	800	995	67	1190	1480	1485
	APR-JUN	445	675	830	69	985	1220	1204
STEMILT nr Wenatchee (miners in)	MAY-SEP	72	98	116	84	134	160	138
ICICLE CREEK nr Leavenworth	APR-SEP	198	270	315	85	365	435	370
	APR-JUL	181	245	289	85	335	395	340
	APR-JUN	144	195	230	85	265	315	270
COLUMBIA R. bl Rock Island Dam (2)	APR-SEP	47300	54200	58800	83	63400	70300	70485
	APR-JUL	40200	46000	49900	84	53800	59600	59736
	APR-JUN	31900	36400	39500	84	42600	47100	47007

**WENATCHEE - CHELAN RIVER BASINS**  
Reservoir Storage (1000 AF) - End of February

**WENATCHEE - CHELAN RIVER BASINS**  
Watershed Snowpack Analysis - March 1, 1994

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
CHELAN LAKE	676.1	172.6	160.5	168.1	Chelan Lake Basin	4	122	76
					Entiat River	2	125	97
					Wenatchee River	12	122	88
					Squilchuck Creek	0	0	0
					Stemilt Creek	2	90	85
					Colockum Creek	1	97	97

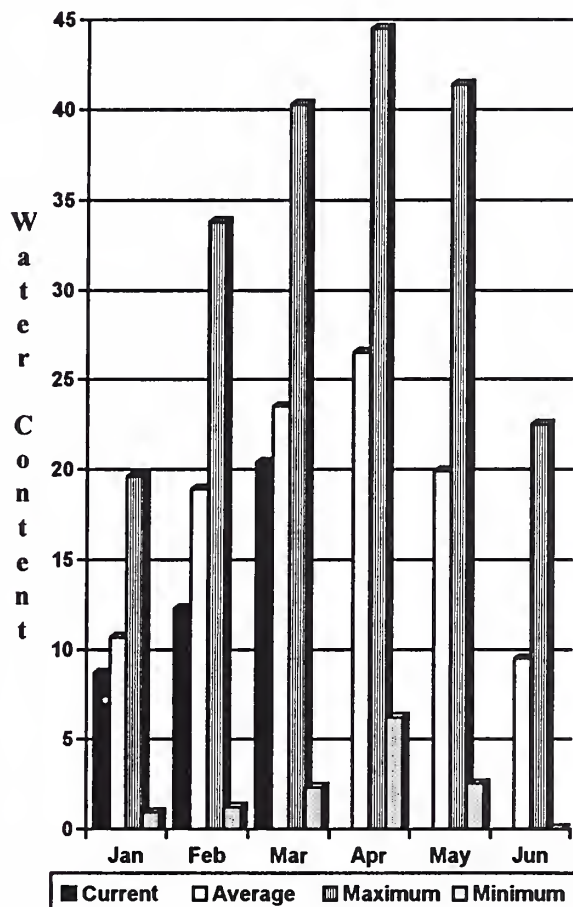
\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

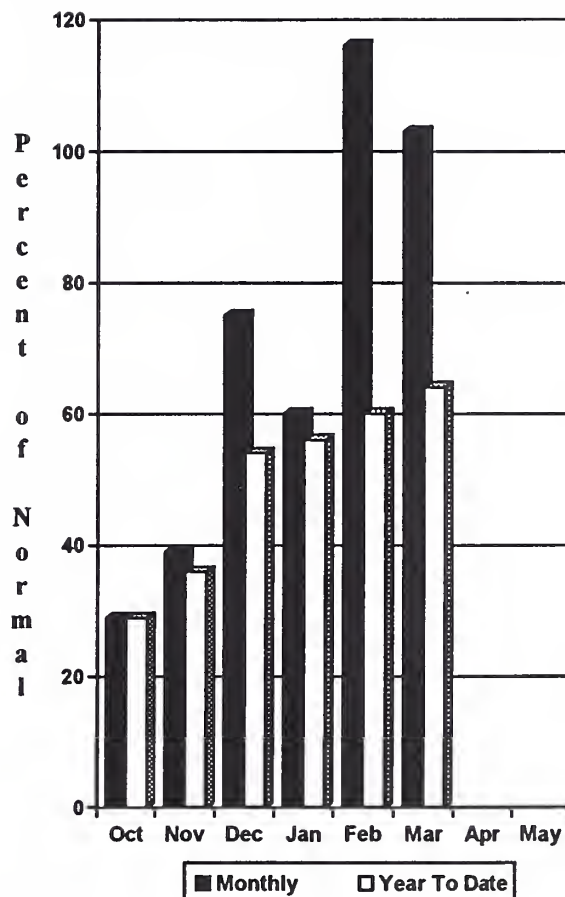
- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
 (2) - The value is natural flow - actual flow may be affected by upstream water management.

# Yakima River Basin

Mountain Snowpack\* (inches)



Precipitation\* (% of normal)



\*Based on selected stations

March 1 reservoir storage for the five major reservoirs was 187,800 acre feet, 27% of average. March 1 summer streamflow forecasts are for below normal in the Yakima Basin. Forecasts for the Yakima River at Cle Elum are for 78% of normal. Naches River, 77%; the Yakima River at Parker, 73%; Ahtanum Creek, 70%; and the Tieton River, 82%. February streamflows were very low, with the Yakima River at Parker 34% of normal, 38% for the Yakima near Cle Elum, and 32% for the Naches River. March 1 snowpack was 87% based upon 20 snow courses and SNOTEL readings. February precipitation was 103% of normal and 64% for the water year-to-date. Temperatures were three degrees below average for February. Volume forecasts for the Yakima Basin are for natural flow. As such, they may differ from the U. S. Bureau of Reclamation's forecast for the total water supply available which includes irrigation return flow.

For more information contact your local Soil Conservation Service office.



**YAKIMA RIVER BASIN**  
Streamflow Forecasts - March 1, 1994

Forecast Point	Forecast Period	<<----- Drier ----- Future Conditions ----- Wetter ----->>						30-Yr Avg. (1000AF)
		Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF) (% AVG.)		30% (1000AF)	10% (1000AF)	
KEECHELUS LAKE INFLOW	APR-JUL	74	86	94	76	102	114	124
	APR-SEP	84	90	100	74	110	115	135
	APR-JUN	75	84	90	83	96	105	109
KACHESS LAKE INFLOW	APR-JUL	69	81	88	79	96	107	111
	APR-SEP	71	79	87	74	95	104	118
	APR-JUN	64	73	79	80	85	95	99
CLE ELUM LAKE INFLOW	APR-JUL	280	305	320	78	335	360	409
	APR-SEP	280	315	335	75	355	390	448
	APR-JUN	235	255	270	78	285	305	345
YAKIMA at Cle Elum	APR-JUN	485	530	560	78	590	635	721
	APR-JUL	560	615	650	78	685	740	832
	APR-SEP	585	650	690	75	730	795	915
BUMPING LAKE INFLOW	APR-SEP	86	100	109	80	118	139	136
	APR-JUL	82	95	103	83	112	124	124
	APR-JUN	67	79	87	84	95	107	104
AMERICAN RIVER near Nile	APR-SEP	85	95	101	86	107	117	118
	APR-JUL	80	88	94	86	100	109	109
	APR-JUN	65	74	80	87	86	95	92
RIMROCK LAKE INFLOW	APR-SEP	161	181	195	82	210	230	238
	APR-JUL	145	160	170	85	180	195	200
	APR-JUN	116	128	137	85	146	158	162
NACHES near Naches	APR-SEP	520	590	640	77	690	760	832
	APR-JUL	495	560	604	80	650	710	755
	APR-JUN	435	490	527	81	565	620	651
AHTANUM CREEK nr Tampico (2)	APR-SEP	14.0	25	32	70	39	50	46
	APR-JUL	14.0	23	30	71	37	46	42
	APR-JUN	12.0	20	26	72	32	40	36
YAKIMA near Parker	APR-SEP	1190	1350	1460	73	1570	1730	1994
	APR-JUL	1120	1260	1355	75	1450	1590	1805
	APR-JUN	1010	1120	1200	75	1280	1390	1597

YAKIMA RIVER BASIN Reservoir Storage (1000 AF) - End of February					YAKIMA RIVER BASIN Watershed Snowpack Analysis - March 1, 1994			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
KEECHELUS	157.8	44.6	48.5	105.0	Yakima River	20	114	87
KACHESS	239.0	50.3	64.1	179.0	Ahtanum Creek	3	97	94
CLE ELUM	436.9	43.9	83.8	273.0				
BUMPING LAKE	33.7	6.4	5.1	10.0				
RIMROCK	198.0	42.6	60.0	130.0				

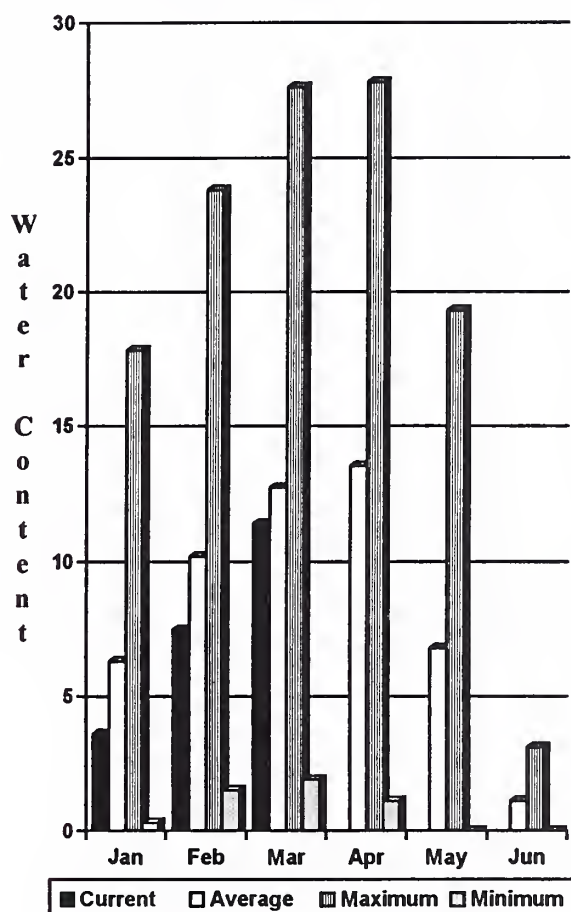
\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

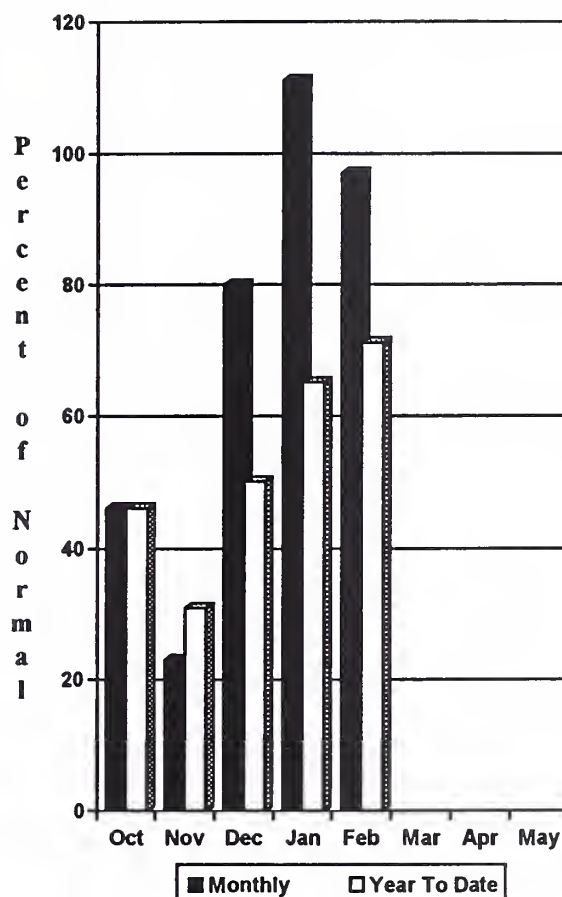
- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
 (2) - The value is natural flow - actual flow may be affected by upstream water management.

# Walla Walla River Basin

Mountain Snowpack\* (inches)



Precipitation\* (% of normal)



\*Based on selected stations

March 1 snowpack was at 90% of normal. The forecast is for 91% of average streamflow in the Walla Walla River for the coming summer, for the Grande Ronde, 95%; the Snake River, 67%; and 94% for Mill Creek. February streamflow was 38% of normal on the Walla Walla River, 44% for the Snake River, and 32% on the Grande Ronde River near Troy. February precipitation was 97% of average, bringing the year-to-date precipitation to 71% of normal. The Touchet SNOTEL site had 22.5 inches of water equivalent. The normal March 1 reading for this site is 27.8 inches. Temperatures were three degrees below average for February.

For more information contact your local Soil Conservation Service office.

# **WALLA WALLA RIVER BASIN** Streamflow Forecasts - March 1, 1994

Forecast Point	Forecast Period	<<----- Drier ----- Future Conditions ----- Wetter ----->>						30-Yr Avg. (1000AF)
		-----		Chance Of Exceeding *		-----		
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
GRANDE RONDE at Troy (1)	MAR-JUL	940	1240	1380	94	1520	1820	1471
	APR-SEP	850	1130	1250	95	1370	1650	1312
SNAKE blw Lower Granite Dam (1,2)	APR-JUL	7130	12100	14400	67	16700	21700	21650
	APR-SEP	8150	13800	16320	67	18900	24500	24360
MILL CREEK at Walla Walla	APR-SEP	8.7	13.1	16.1	94	19.1	24	17.1
	APR-JUL	8.7	13.1	16.1	95	19.1	24	16.9
	APR-JUN	8.6	13.0	15.9	95	18.8	23	16.7
SF WALLA WALLA nr Milton Freewater	APR-JUL	38	44	48	91	52	58	53
COLUMBIA R. at The Dalles (2)	APR-SEP	56400	67300	74900	76	82200	93000	98982
	APR-JUL	48700	58000	64300	76	70600	79900	84760
	APR-JUN	39800	47300	52400	76	57500	65000	68925

## **WALLA WALLA RIVER BASIN** Reservoir Storage (1000 AF) - End of February

## **WALLA WALLA RIVER BASIN** Watershed Snowpack Analysis - March 1, 1994

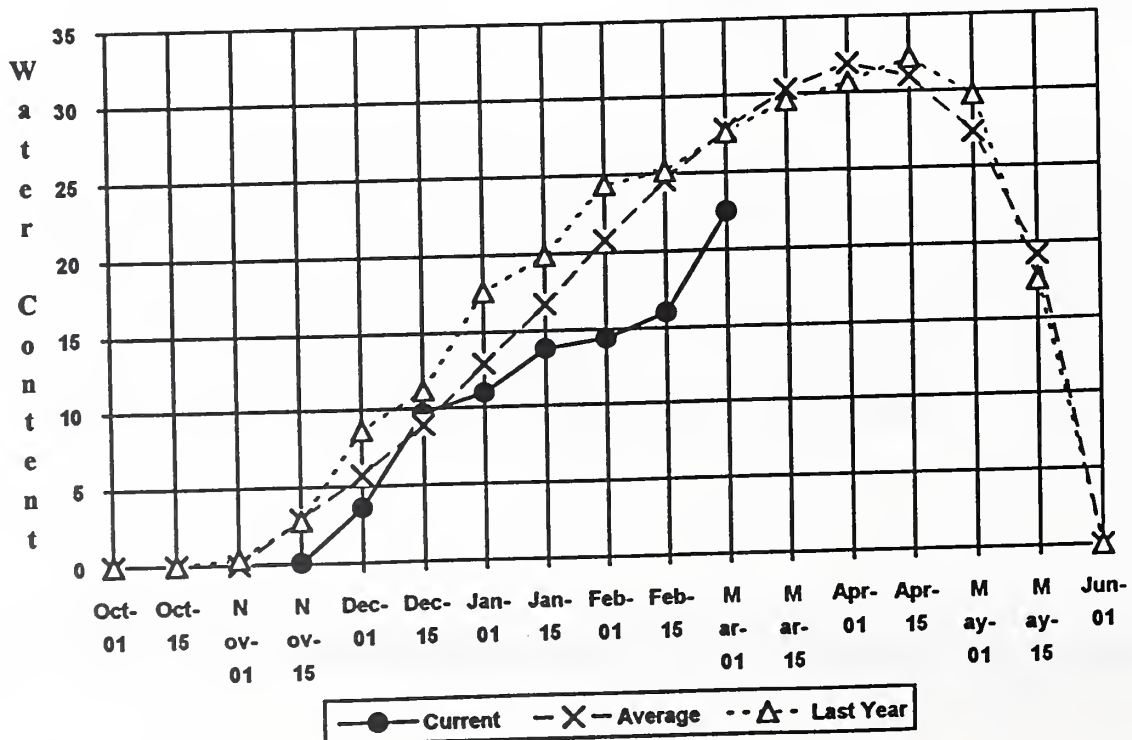
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					Mill Creek	2	84	90

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
 (2) - The value is natural flow - actual flow may be affected by upstream water management.

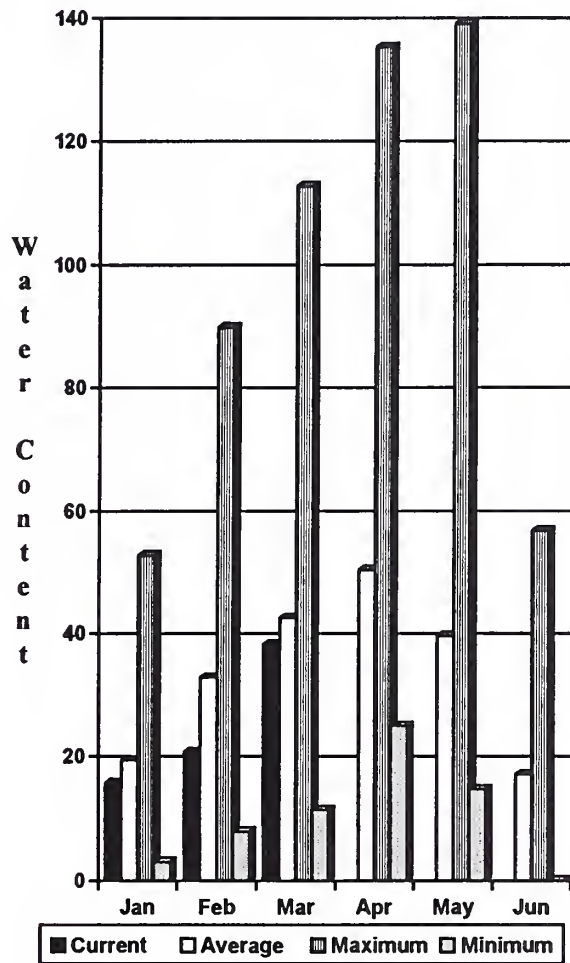
## **Touchet #2 SNOTEL**



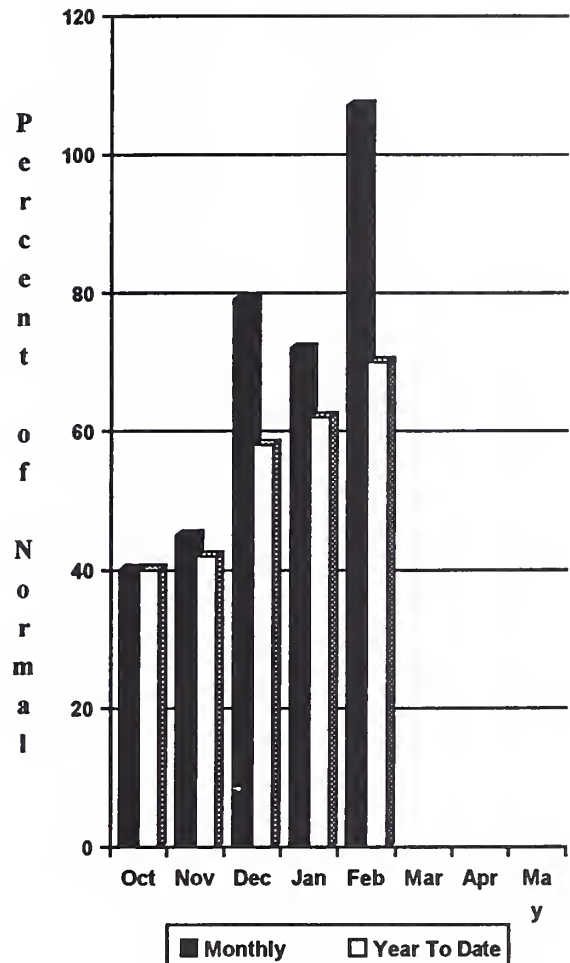


# Cowlitz - Lewis River Basins

Mountain Snowpack\* (inches)



Precipitation\* (% of normal)



\*Based on selected stations

February precipitation was 107% of normal, bringing the precipitation to 70% of average for the water year. March 1 snow cover for the Cowlitz River was 88%, and for the Lewis River it was 94%. The forecast for summer runoff in the Lewis River is 81% of normal. The Cowlitz River, is forecasted for 74% of normal runoff. February streamflow on the Cowlitz River was 45% of average, and 48% on the Lewis River. The Paradise Park SNOTEL contained the most water content for the basin with 46.4 inches of water. Normal March 1 water content is 47.9 inches. Temperatures were three degrees below normal for February.

For more information contact your local Soil Conservation Service office.

**COWLITZ - LEWIS RIVER BASINS**  
Streamflow Forecasts - March 1, 1994

Forecast Point	Forecast Period	<<----- Drier ----- Future Conditions ----- Wetter ----->>						30-Yr Avg. (1000AF)
		-----		Chance Of Exceeding *		-----		
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
LEWIS RIVER at Ariel (2)	APR-SEP	460	825	975	81	1130	1490	1204
	APR-JUL	550	740	870	83	1000	1190	1051
	APR-JUN	500	670	785	84	900	1070	933
COWLITZ R. bl Mayfield Dam (2)	APR-SEP	510	1170	1460	74	1750	2420	1970
	APR-JUL	660	1030	1280	74	1530	1900	1731
	APR-JUN	580	895	1110	75	1320	1640	1477
COWLITZ R. at Castle Rock (2)	APR-SEP	695	1660	2040	76	2420	3390	2667
	APR-JUL	965	1450	1780	77	2110	2590	2325
	APR-JUN	860	1280	1560	78	1840	2260	1995

COWLITZ - LEWIS RIVER BASINS Reservoir Storage (1000 AF) - End of February					COWLITZ - LEWIS RIVER BASINS Watershed Snowpack Analysis - March 1, 1994			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of -----	
		This Year	Last Year	Avg			Last Yr	Average
					Cowlitz River	7	96	88
					Lewis River	4	90	94

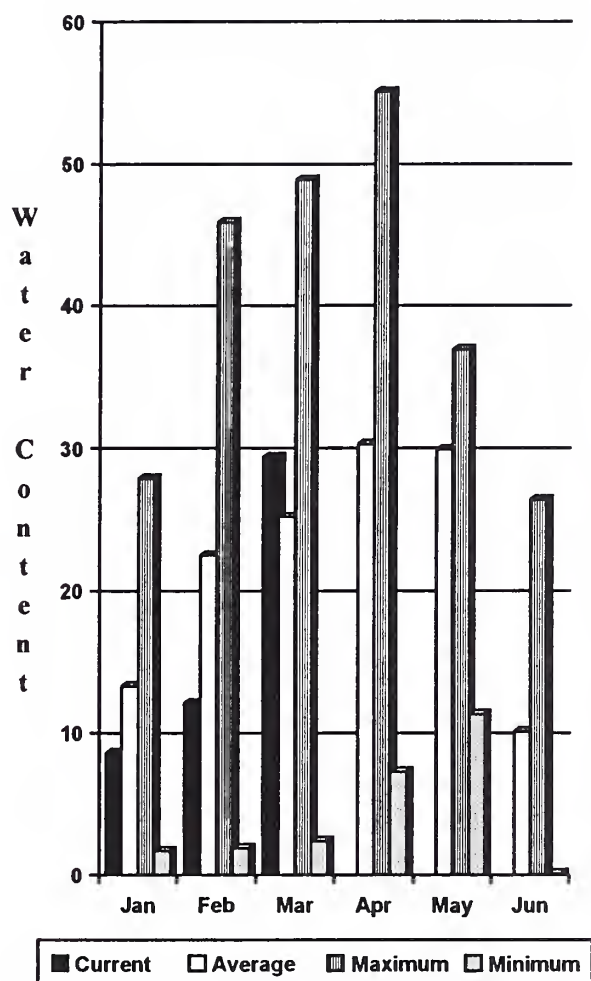
\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

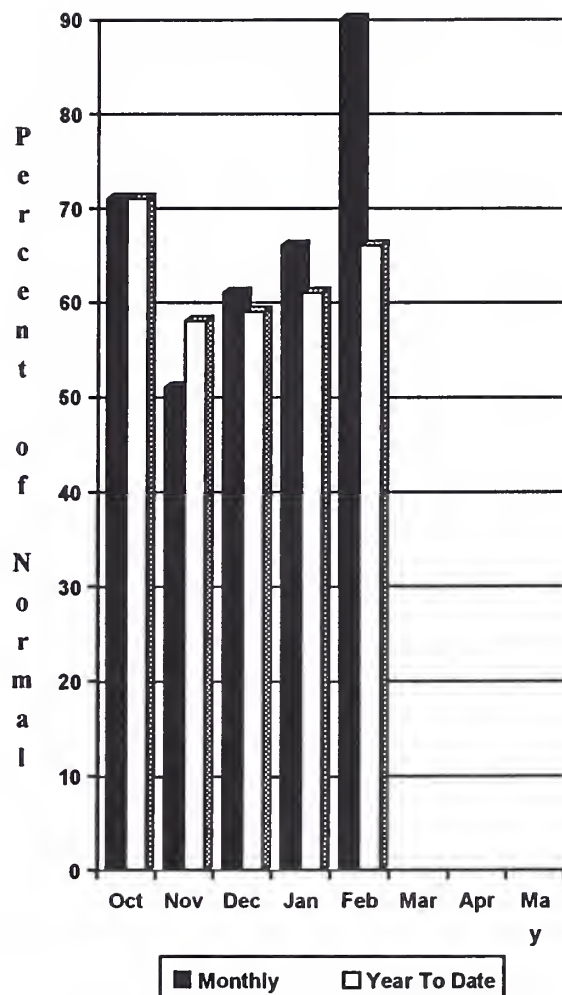
- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
 (2) - The value is natural flow - actual flow may be affected by upstream water management.

# White - Green River Basins

Mountain Snowpack\* (inches)



Precipitation\* (% of normal)



\*Based on selected stations

February precipitation was 90% of normal, bringing the water year-to-date to 66% of average. Summer runoff is forecasted to be 89% of normal for the Green River and 87% for the Cedar River, for the Rex River 88%; 86% for the South Fork of the Tolt River and for the Cedar River at Cedar 82%. March 1 snowpack was 83% of normal in the White River Basin and 79% in the Green River Basin. Water content on March 1 at the Stampede Pass SNOTEL, at an elevation of 3860 feet, was 34.4 inches. This site has a March 1 average of 38.2 inches. Temperatures were three degrees below average for February.

For more information contact your local Soil Conservation Service office.



**WHITE - GREEN RIVER BASINS**  
Streamflow Forecasts - March 1, 1994

Forecast Point	Forecast Period	<<----- Drier ----- Future Conditions ----- Wetter ----->>						
		Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
GREEN RIVER below Howard Hanson Dam	APR-JUL	194	215	230	89	245	265	257
	APR-SEP	210	235	250	88	265	290	285
	APR-JUN	174	196	210	90	225	245	234
CEDAR RIVER near Cedar Falls	APR-JUL	53	61	67	87	73	81	77
	APR-SEP	60	68	74	87	80	88	85
	APR-JUN	48	55	60	88	65	72	68
REX RIVER near Cedar Falls	APR-JUL	18.0	21	24	89	27	30	27
	APR-SEP	21	24	27	90	30	33	30
	APR-JUN	17.0	20	22	88	24	27	25
CEDAR RIVER at Cedar Falls	APR-JUL	45	58	67	82	76	89	82
	APR-SEP	45	58	67	81	76	89	83
	APR-JUN	44	57	66	83	75	88	80
SOUTH FORK TOLT near Index	APR-JUL	10.5	12.1	13.1	86	14.1	15.7	15.2
	APR-SEP	12.2	14.2	15.5	87	16.8	18.8	17.8
	APR-JUN	9.2	10.6	11.5	88	12.4	13.8	13.1

WHITE - GREEN RIVER BASINS  
Reservoir Storage (1000 AF) - End of February

WHITE - GREEN RIVER BASINS  
Watershed Snowpack Analysis - March 1, 1994

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					White River	3	102	83
					Green River	5	99	79
					Cedar River	2	94	86

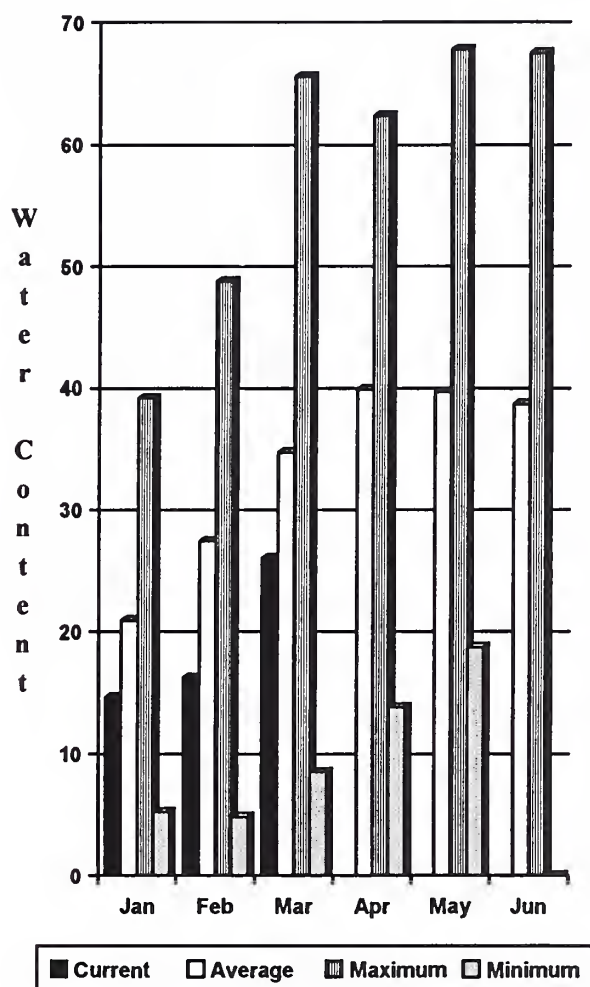
\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

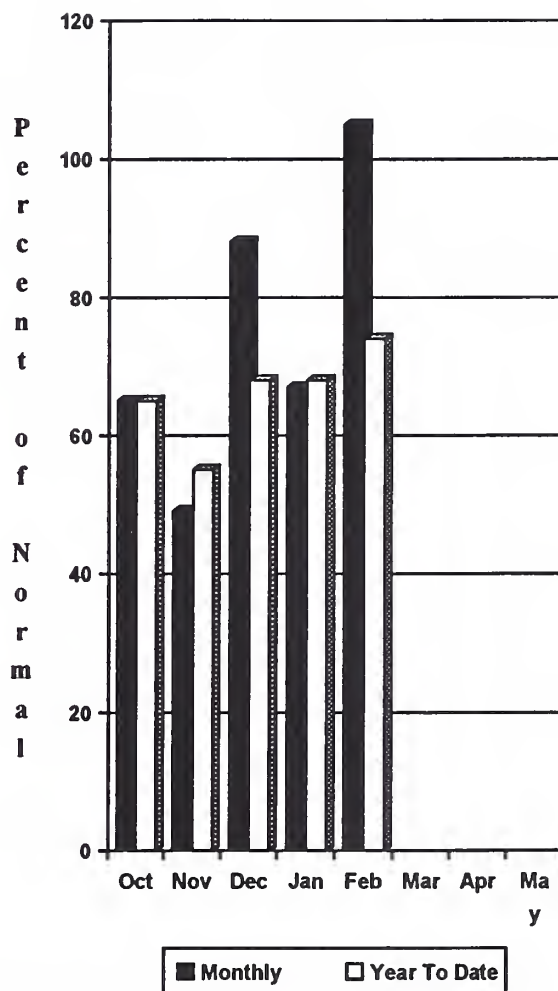
- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
 (2) - The value is natural flow - actual flow may be affected by upstream water management.

# North Puget Sound River Basins

Mountain Snowpack\* (inches)



Precipitation\* (% of normal)



\*Based on selected stations

March 1 snow cover in the Skagit River was 75% of normal, and in the Baker River it was 60% of average. Forecast for the Skagit River streamflow is for 84% of normal for the spring and summer period. February streamflow in the Skagit River was 60% of average. Other summer forecasts include the Baker River at 83% and Thunder Creek at 87%. Precipitation for February was 90% of average with a water year-to-date at 74% of normal. Rainy Pass SNOTEL, at 4780 feet, had 29.0 inches of water content. Normal March 1 water content is 32.7 inches. March 1 reservoir storage was above average, with Ross Lake at 252% normal and 55% of capacity. February temperatures were three degrees below normal.

For more information contact your local Soil Conservation Service office.

# **NORTH PUGET SOUND RIVER BASINS** Streamflow Forecasts - March 1, 1994

Forecast Point	Forecast Period	<<----- Drier ----- Future Conditions ----- Wetter ----->>						
		90%		50% (Most Probable)		30%		30-Yr Avg. (1000AF)
		(1000AF)	(1000AF)	(1000AF)	(% AVG.)	(1000AF)	(1000AF)	
THUNDER CREEK near Newhalem	APR-JUL	175	190	200	87	210	225	230
	APR-SEP	260	275	285	87	295	310	328
	APR-JUN	102	119	130	87	142	158	149
SKAGIT RIVER at Newhalem (2)	APR-SEP	1370	1650	1840	84	2030	2310	2185
	APR-JUL	1150	1380	1540	84	1700	1930	1830
	APR-JUN	900	1080	1200	85	1320	1500	1410
BAKER RIVER near Concrete	APR-JUL	565	640	690	83	740	815	836
	APR-SEP	725	810	870	82	930	1020	1064
	APR-JUN	435	490	530	87	570	625	611

## NORTH PUGET SOUND RIVER BASINS Reservoir Storage (1000 AF) - End of February

## NORTH PUGET SOUND RIVER BASINS Watershed Snowpack Analysis - March 1, 1994

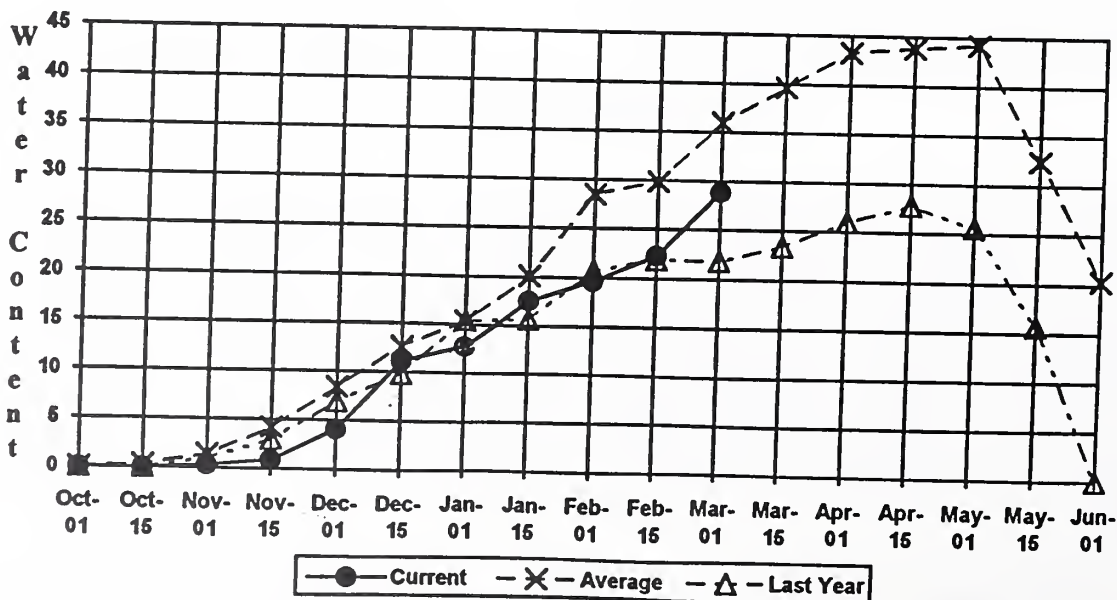
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
ROSS	1404.1	774.7	607.0	307.6	Snohomish River	6	112	82
DIABLO RESERVOIR	90.6	86.4	87.1	---	Skagit River	13	117	75
GORGE RESERVOIR	9.8	8.0	7.5	---	Baker River	2	93	60

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

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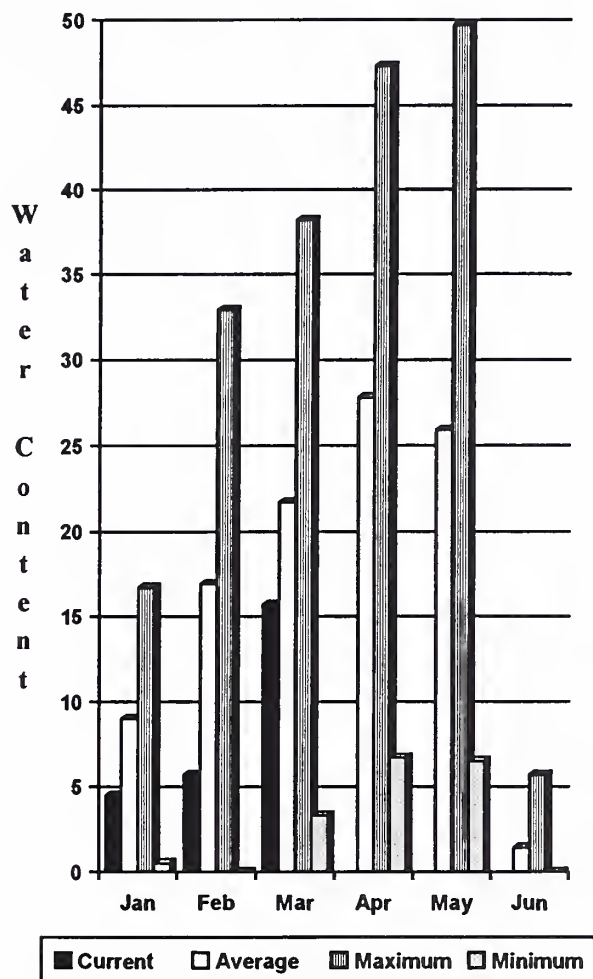
## Rainy Pass SNOTEL



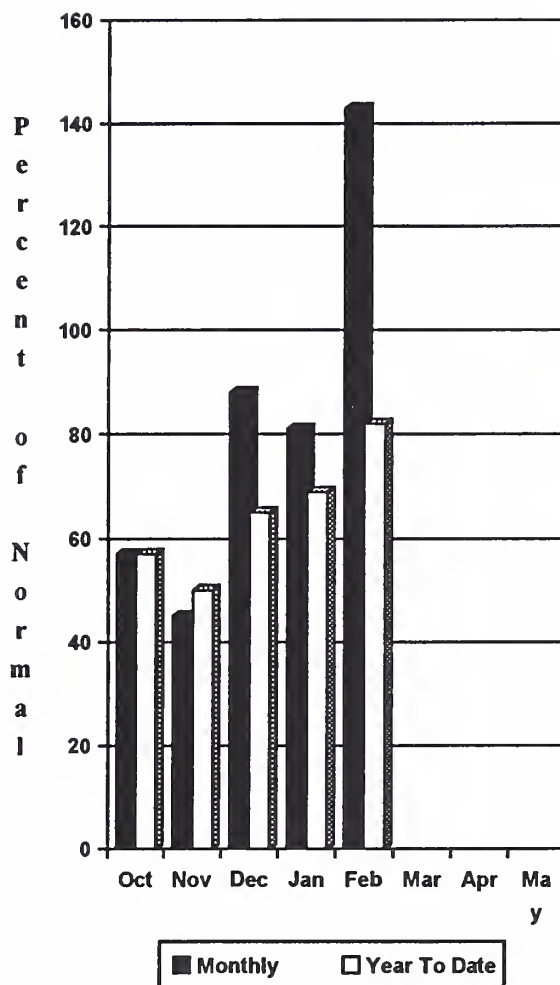


# Olympic Peninsula River Basins

Mountain Snowpack\* (inches)



Precipitation\* (% of normal)



\*Based on selected stations

February precipitation was 143% of average. Precipitation has accumulated at 82% of normal for the water year. February precipitation at Quillayute was 17.96 inches. March 1 snow cover in the Olympic Basin was below normal at 72%. March forecasts of runoff for streamflow in the basin are for 78% of average for the Dungeness River and the Elwha River, 82%. The Big Quilcene can expect near normal runoff this summer. The Mount Crag SNOTEL near Quilcene had 24.9 inches on March 1. Last year it had 17.9 inches. Temperatures were two degrees below normal for February.

For more information contact your local Soil Conservation Service office.

# **OLYMPIC PENINSULA RIVER BASINS** Streamflow Forecasts - March 1, 1994

Forecast Point	Forecast Period	<<----- Drier ----- Future Conditions ----- Wetter ----->>						30-Yr Avg. (1000AF)
		-----		Chance Of Exceeding *		-----		
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
DUNGENESS RIVER nr Sequim	APR-SEP	97	114	125	78	137	153	160
	APR-JUL	82	96	105	80	114	128	131
	APR-JUN	62	72	79	81	86	96	98
ELWHA RIVER nr Port Angeles	APR-SEP	310	370	410	82	450	510	502
	APR-JUL	260	310	342	82	375	425	417

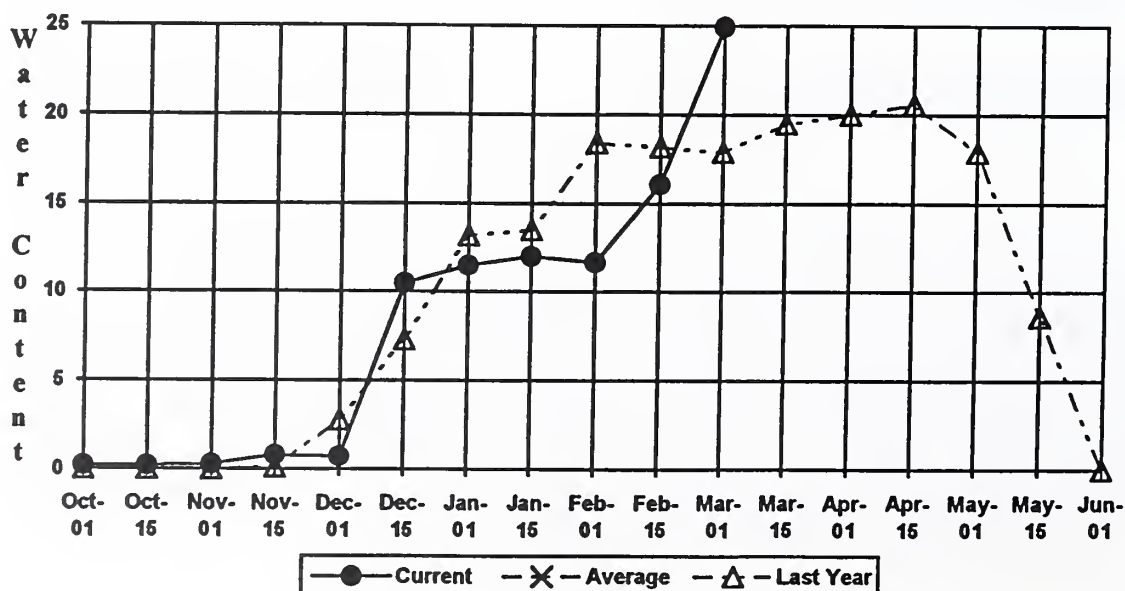
OLYMPIC PENINSULA RIVER BASINS Reservoir Storage (1000 AF) - End of February					OLYMPIC PENINSULA RIVER BASINS Watershed Snowpack Analysis - March 1, 1994			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					Elwha River	1	128	63
					Morse Creek	1	135	80
					Dungeness River	1	111	68
					Quilcene River	1	139	104
					Wynoochee River	0	0	0

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
 (2) - The value is natural flow - actual flow may be affected by upstream water management.

## Mount Crag SNOTEL



\* No average snow pack is available for Mount Crag at this time.

In addition to basin outlook reports, a Water Supply Forecast for the Western United States is published by the Soil Conservation Service and National Weather Service monthly, January through May. Reports may be obtained from the Soil Conservation Service, West National Technical Center, 511 Northwest Broadway, Room 248, Portland, OR 97209-3489.

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*Issued by*

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*Released by*

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## The Following Organizations Cooperate With the Soil Conservation Service in Snow Survey Work\*:

**Canada**

Ministry of the Environment  
Investigations Branch, Victoria, British Columbia

**Federal**

Washington State Department of Ecology  
Washington State Department of Natural Resources

**State**

Department of the Army  
Corps of Engineers  
U.S. Department of Agriculture  
Forest Service  
U.S. Department of Commerce  
NOAA, National Weather Service  
U.S. Department of Interior  
Bonneville Power Administration  
Bureau of Reclamation  
Geological Survey  
National Park Service  
Bureau of Indian Affairs

**Local**

City of Tacoma  
City of Seattle  
Chelan County P.U.D.  
Pacific Power and Light Company  
Puget Sound Power and Light Company  
Washington Water Power Company  
Snohomish County P.U.D.  
Colville Confederated Tribes  
Spokane County  
Yakima Indian Nation

**Private**

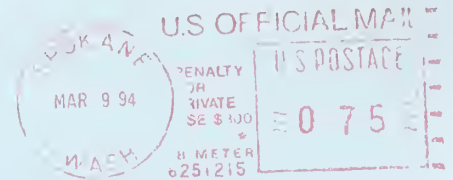
Okanogan Irrigation District  
Wenatchee Heights Irrigation District  
Newman Lake Homeowners Association

\*Other organizations and individuals furnish valuable information for the snow survey reports. Their cooperation is gratefully acknowledged.





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SOIL CONSERVATION SERVICE

# Washington Basin Outlook Report

Soil Conservation Service  
Spokane, WA

